Anatomy of Japanese conifers.—The difficulty in distinguishing the wood of closely related conifers by their anatomical structure is clearly illustrated by FUJIOKA'S detailed study[7] of the anatomy of 37 species of Japanese Coniferales. The primary object of the investigation, as outlined in the preface, was to secure a more reliable basis for distinguishing the various Japanese woods of similar external appearance. In the "Tabelle zum Bestimmen" which summarizes the results of the investigation, the 19 genera investigated are separated into 16 groups. Evidently no simple and reliable basis for distinguishing species was discovered, nor were the following genera separated: *Taxus* and *Torreya; Thuyopsis*, *Cryptomeria*, *Chamaecyparis*, and *Cunninghamia*. The diagnostic characters used in the classification are those used by GOTHAN[8] in his key to the wood of the gymnosperms and are therefore subject to similar criticisms.

The use of traumatic resin canals as a basis for separating the Abieteae (*Abies* and *Tsuga*) from other conifers is unreliable, since any given specimen submitted for identification may be uninjured and therefore may not possess these structures. As the reviewer has pointed out,[9] tertiary thickenings are not invariably a reliable diagnostic character in separating the wood of *Larix*, *Pseudotsuga*, and *Picea*. Similarly, variations in ray parenchyma pitting are of doubtful value in distinguishing the wood of the various genera of the Cupressineae. That the cupressineous type of ray pitting is a reduction from the abietineous type ("Abietineen Tüpfelung") is clearly shown by the persistence of the latter in the Taxodineae and Cupressineae in regions of phylogenetic significance, for example, cone axis, injured wood, young root, etc. As is commonly the case with structures undergoing reduction, the ray pitting is extremely variable in a given species or genus of the Cupressineae, just as is the occurrence of marginal tracheids and the recurrence of resin canals in the wood of the Abieteae and *Sequoia*.

The study of many gymnosperms and angiosperms emphasizes the fact that although internal structures are invaluable in blocking out the general outlines of a natural classification of plants, they are too conservative to be significant in distinguishing closely allied species and genera.—IRVING W. BAILEY.

Cecidology.—Among the European contributions is a paper by SCHELLENBERG[10] in which the author claims that galls caused by fungi serve for storage for

[7] FUJIOKA, M., Studien über den anatomischen Bau des Holzes japanischen Nadelbäume. Jour. Coll. Agric. **4**:201–236. *pls. 18–24.* 1913.

[8] GOTHAN, W., Zur Anatomie lebender und fossiler Gymnospermen-Hölzer. Abh. Preuss. Geol. Landesanstalt. Berlin. 1905.

[9] BAILEY, I. W., The structure of the wood in the Pineae. BOT. GAZ. **48**:47–55. *pl. 5.* 1909.

[10] SCHELLENBERG, H. C., Über Speicherung von Reservestoffen in Pilzgallen. Verhandl. Schweiz. Naturl. Gesells. **94**:277–279. 1911.

the parasite. These storage materials are the same as those found in other parts of the plants except that they have a much higher concentration.

SWANTON[11] describes a mite gall on *Geranium lucidum* caused by *Eriophyes geranii canestrini*. This gall does not occur on other species of *Geranium* on the British Islands, but does occur on three other species on the continent. *E. rubiae* Can. attacks the apical leaves of *Rubia peregrina*, causing them to appear as flowers.

In the American literature we note a new species by COCKERELL[12] under the name of *Cecidomyia peritomatis*. This is especially interesting because of the very few galls known on Capparidaceae.

A very interesting paper by WHITE[13] on the bearing of teratological development in *Nicotiana* on the theories of heredity begins with a brief review of our knowledge of teratology. The mutant of *Nicotiana tabacum* was obtained from Alquiza, Cuba, in 1907. The malformation consisted of a flattened stem accompanied by many smaller teratological features, especially in the flowers. Five generations, involving more than 1000 plants, have been grown, each individual showing the original mutant characters which are shown in tables. The results of his experimental work are summarized as follows: "From the results of hybridization and selection, one may draw the conclusion that the fasciated mutant differed from the normal parent strain by only one factor, and that it represents a mutation upon the variability of which selection has no modifying effect. The character appears to be due to the one underlying cause, and its variableness is only the external manifestation of the capricious working of that cause." The author also gives a very interesting and suggestive discussion of the cytology of the mutant and the normal, which he concludes by saying that "the evidence warrants one in the suggestion that chromosomes are characters of the zygote and gametophyte, on the same development with other plant characters."—MEL. T. COOK.

Araucarineae.—THOMSON[14] has made a detailed study of the anatomy of the araucarians, and has reached certain conclusions in reference to the affinities of this much discussed group. He has taken into account leaf gaps, leaves, pitting of secondary tracheids (including bars of Sanio), resin tissue, medullary rays, bast and periderm, annual ring and tangential pitting, and fossil forms. The recent discussion concerning the origin of the araucarians has presented

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[11] SWANTON, E. W., New and rare British plant galls. Jour. Botany **50**:283, 284. 1912.

[12] COCKERELL, T. D. A., A new gall on *Peritoma serrulatum*. Jour. Econ. Entomol. **6**:279, 280. 1913.

[13] WHITE, O. E., The bearing of teratological development in *Nicotiana* on the theories of heredity. Amer. Nat. **47**:206–228. 1913.

[14] THOMSON, ROBERT BOYD, On the comparative anatomy and affinities of the Araucarineae. Phil. Trans. Roy. Soc. London B **204**:1–50. *pls.* 1–7. 1913.